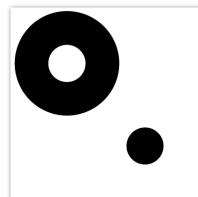


Segmentation

Different versions of a product; from basic cars to highly equipped ones.

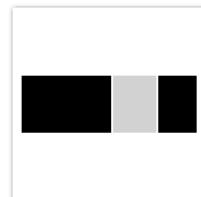
1. Divide an object into independent parts.
2. Make an object that is sectional and easy to disassemble.
3. Increase the degree of fragmentation or segmentation.



Taking Out

An alarm that sounds like a dog. It's not necessary to have the whole dog to scare off thieves, just the barks.

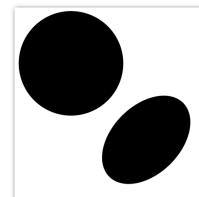
1. Separate an interfering part or property from an object, or select only the necessary part of an object.



Local Quality

An online streaming service for series and movies. Provide original content from each country based on its culture.

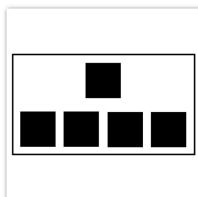
1. Change the structure of an object or its environment from uniform to uneven.
2. Make a part of an object work in more favorable situations.
3. Make each part of an object perform a different and useful function.



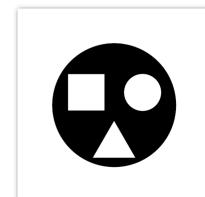
Asymmetry

An self-service ice cream shop where customers are charged by the weight of the ice cream they serve themselves. There are no defined measurements.

1. Change the shape of an object from symmetric to asymmetric.
2. If an object is symmetrical, increase the degree of asymmetry.



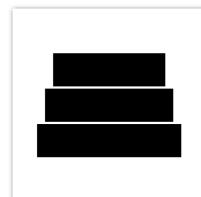
Merging



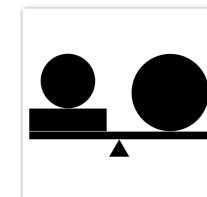
Multifunctionality

Use the same location to place multiple food restaurants. Share the furniture and the soda fountain.

1. Bring together or merge identical or similar objects, or assemble them to perform parallel operations.
2. Perform operations continuously in parallel; consolidate them in time.



Nested Doll



Weight Compensation

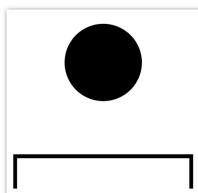
An online store without products. Allow third parties to sell their items on it and receive a commission for each sale.

1. Place an object inside another.
2. Make an object pass through the cavity of another object

1. To compensate for the weight of an object, mix it with others that provide lift.
2. To counteract the weight of an object, make it interact with the environment using aerodynamics, hydrodynamics, buoyancy, and other forces.



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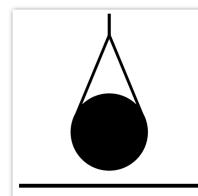


9

Preliminary Neutralization

Lead vests for X-rays. Warming up before exercising to avoid physical injuries or muscle cramps.

1. If it is necessary to carry out an action with harmful and useful effects, this action must be replaced with an anti-action to control the harmful effects.
2. Create forces in advance against an object that will oppose the undesirable stress of a known task.

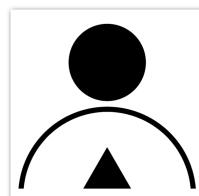


10

Preliminary Action

Preventive maintenance for industrial machinery. Strategic plans for businesses.

1. Perform the required changes (partial or complete) to an object before they are necessary.
2. Organize the objects in advance so that they can take action from the most convenient place and without wasting time for their delivery.

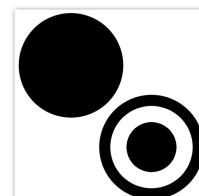


11

Beforehand Compensation

Evacuation routes to improve the reliability of buildings in emergencies. Emergency power for computer servers.

1. Prepare emergency measures in advance to compensate for the relatively low reliability of an object or system.

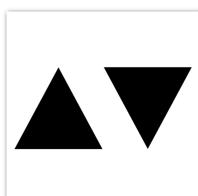


12

Equipotentiality

Improve the performance of an organization by removing levels in decision-making. A worker heard by a manager.

1. Change the operating conditions to eliminate the need to work against a potential field (eliminate the need to lift or lower objects in a gravitational field).

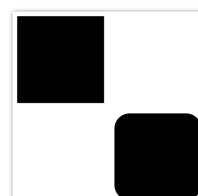


13

The Other Way Around

Compare a business with the worst of the competition. Find out what things should not be done.

1. Invert the action used to solve the problem.
2. Make movable parts fixed, and fixed parts movable.
3. Invert an object or process

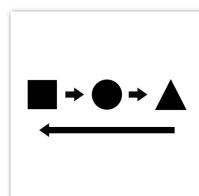


14

Curvature Increase

Central pivot irrigation. More uniform circular crops for better water utilization and topography.

1. Instead of using parts, surfaces, or straight shapes, use curvilinear ones; shift from flat surfaces to spherical ones; from cube-shaped parts to ball-shaped structures.
2. Use rollers, balls, spirals, domes.
3. Transition from linear motion to rotational motion using centrifugal forces.



15

Dynamic Parts

Spectacular advertising using giant screens to promote various products or brands. Escalators.

1. Design the characteristics of an object, external environment, or process in such a way that it can find an optimal operating condition.
2. Divide an object into parts that can move independently.
3. If an object or process is rigid or inflexible, make it movable or adaptable.



16

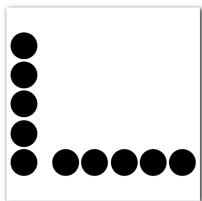
Partial or Excessive Actions

In software development, first deliver the "Minimum Viable Product"; it can be up to 15%.

1. If achieving 100% of a goal is difficult using a given solution method, the problem may be considerably easier to solve using slightly less or slightly more of the same method.



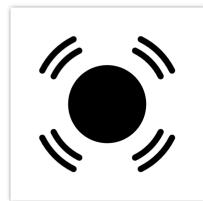
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17 Dimensionality Change

Consulting for companies; a different perspective to advise an organization.

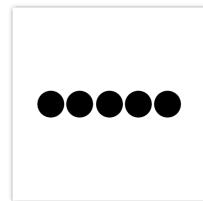
1. Moving into an additional dimension, from one dimension to two dimensions, from two dimensions to three dimensions.
2. Use a multi-level arrangement of objects instead of a single-level arrangement.
3. Tilt or reorient the object; place it on its side.
4. Use the "other side" of a given area.



18 Mechanical Vibrations

Replace the sound on cell phones with vibrations to notify the owner of a call or message.

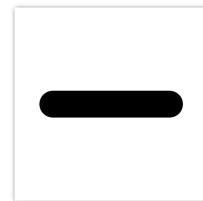
1. Make an object oscillate or vibrate.
2. Increase the object's frequency, even up to ultrasonic.
3. Use the resonant frequency of an object.
4. Use piezoelectric vibrators instead of mechanical ones.
5. Use combined oscillations of an ultrasonic and electromagnetic field.



19 Periodic Action

Store images instead of videos to optimize storage capacity. Training during work breaks.

1. Instead of continuous action, use periodic or pulsing actions.
2. If an action is already periodic, change the magnitude or periodic frequency.
3. Use pauses between impulses to perform a different action.



20 Continuity of Useful Action

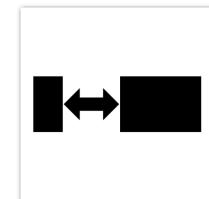
24/7 self-service stores and restaurants with a single menu for any time of the day.

1. Work continuously. Make all parts of an object work at full capacity all the time.
2. Eliminate all inactive or intermittent actions or jobs.



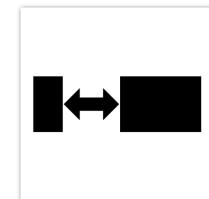
21 Hurrying or Skipping

Create a rapid prototype to verify the design of a product and check if it meets the required characteristics.



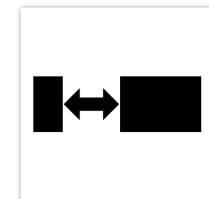
22 A Blessing in Disguise

Eliminate the fear of change by using the fear of competition.



23 Feedback

A company that takes into account customer feedback about its products to improve them.



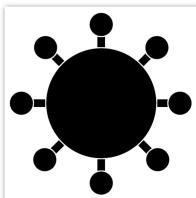
24 Intermediary

Partnering with another company to offer a new product or service. Gloves for handling hot items in the kitchen.

1. Use an intermediary article or process.
2. Temporarily mix one object with another (that is easy to remove).



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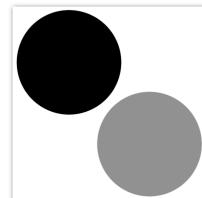


25

Self-service

Fast food restaurants that use customers as a resource for self-service, saving time on service.

1. Make an object serve itself by performing useful auxiliary functions.
2. Use waste resources or energy.

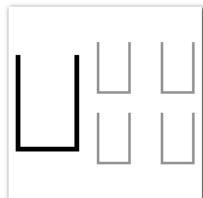


26

Copying

Create didactic tools in teaching to simulate practical environments.

1. Instead of an unavailable, expensive, or fragile object, use simpler and more economical copies.
2. Replace an object or process with optical copies.
3. If visible optical copies are already in use, switch to infrared or ultraviolet copies.



27

Cheap Disposables

Use of disposable sheets and clothing in hospitals to maintain a maximum level of hygiene.

1. Replace an expensive object with multiple cheap objects compromising certain qualities, such as lifespan.

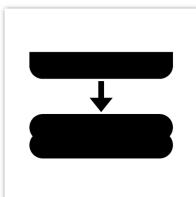


28

Mechanical Interaction Substitution

Add odor to propane gas so that leaks can be identified by smell.

1. Replace a mechanical means with a sensory means (optical, acoustic, taste, or smell).
2. Use electric, magnetic, and electromagnetic fields to interact with the object.
3. Change from static fields to mobile ones, from unstructured fields to those that are structured.
4. Use fields in conjunction with particles activated (such as ferromagnetic) by that field.

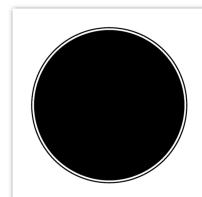


29

Pneumatic and Hydraulic

Use inflatable boats instead of those made of wood. They withstand impacts on rocks and are easy to transport.

1. Replace the solid parts of an object with a gas or liquid. These parts can use air or water to inflate or use pneumatic or hydrostatic cushioning.

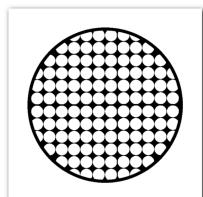


30

Flexible Shells and Thin Films

Flexible latex gloves to protect doctors and patients from infections.

1. Use flexible frameworks and thin films instead of three-dimensional structures.
2. Isolate the object from the external environment using flexible layers and thin films.

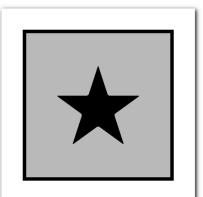


31

Porous Material

In an organization where there is no communication, set up information transmission channels so that everyone is up to date.

1. Make a porous object or add porous elements such as inserts or coatings.
2. If an object is already porous, use the pores to introduce a substance or useful functions.



32

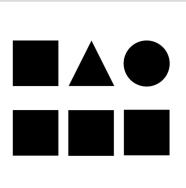
Optical Property Changes

Lenses that change color with the environment, they become dark in the sun and transparent indoors.

1. Change the color of an object or its external environment.
2. Change the transparency of an object or its external environment.



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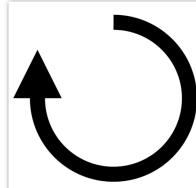


33

Homogeneity

A printing house that creates different products using the same raw materials, ink, and paper. It does not require more infrastructure.

1. Ensure that the objects interacting with a given object are made of the same material, or of a material with identical properties.

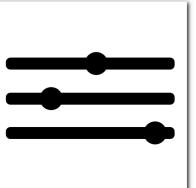


34

Discard and Recover

In medicine, absorbable sutures disappear over a period of time. Guarantee of products to build trust with the customer.

1. Make the parts of an object that have fulfilled their functions disappear (discard by dissolving or evaporating) or modify them during the process.
2. Restore the consumed parts of an object during the process.

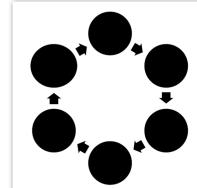


35

Parameter Changes

Increase employee motivation by involving them in the decision-making process of the company.

1. Change the physical state of an object to gas, liquid, or solid.
2. Change the concentration or consistency.
3. Change the degree of flexibility.
4. Change the temperature.

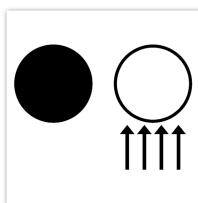


36

Phase Transitions

In software engineering, create a project by following phases for its proper development.

1. Utilize the phase transition phenomenon (change in volume, heat loss or absorption, etc.).

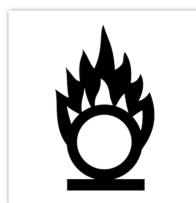


37

Thermal Expansion

Acquire new equipment and tools in a business to expand the services and products offered.

1. Use the thermal expansion or contraction of materials.
2. If thermal expansion is used, use multiple materials with different coefficients of thermal expansion.

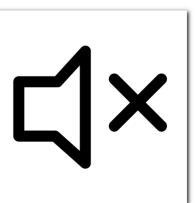


38

Strong Oxidants

Enriched Air (Nitrox) to increase bottom time in diving. Allow the customer to customize their products.

1. Replace common air with oxygen-enriched air.
2. Replace the enriched air with pure oxygen.
3. Use ionized oxygen.
4. Replace ozonized (or ionized) oxygen with ozone.

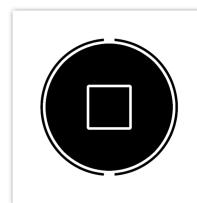


39

Inert Atmosphere

Maintain a criticism-free atmosphere in a brainstorming session. All ideas are welcome.

1. Replace a normal environment with an inert one.
2. Add neutral parts or inert additives to an object.



40

Composite Materials

Multidisciplinary teams for complex projects. Plugins in software applications to enhance functionalities.

1. Replace uniform materials with composites.



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